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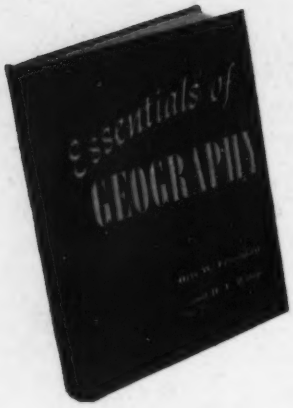

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VOLUME XLIX SEPTEMBER, 1950 NUMBER 6

CONSERVATION—AN IMMEDIATE CONCERN TO ALL NATIONS

HALENE HATCHER
United States Office of Education

As never before, nations the world over are considering conservation a matter of recognized necessity to each individual, an issue of vital concern to all peoples, and potentially a "major basis of peace." Indicative of this unprecedented world-wide interest is the fact that within a recent twelve-month period conservation problems were highlighted by the convening of five international meetings, by the birth of the International Union for the Protection of Nature, and by the two recent world-wide conservation conferences, the United Nations Scientific Conference on the Conservation and Utilization of Resources and the International Technical Conference for the Protection of Nature. An examination of the two last mentioned conferences and their study of world-wide resource problems is the concern of this article.

These conferences, the first of their kind ever to be held, mark a significant milestone in effecting efficient programs of action in various countries and in furthering notable developments in world understanding, cooperative research, and conservation education. As pointed out by Dr. Fairfield Osborn in an opening-day address, the world conferences on resources are indicative "of the evolution of human society. A century ago, even a half-century ago, such a meeting would have been impossible. Slowly but surely the shackles of selfish nationalism are dissolving. Nations are commencing to sense that their well being is influenced by conditions in countries on the opposite side of the earth."

ORIGIN AND PURPOSE OF THE FIRST WORLD CONSERVATION CONFERENCE

The United Nations Scientific Conference on the Conservation and Utilization of Resources, Lake Success, August 17 to Septem-

ber 6, 1949, had its inception in 1946 when President Truman called attention to the importance of conservation of natural resources for the purpose of safeguarding peace. In his letter of September 4, 1946, to the United States representative to the Economic and Social Council of the United Nations, the President concluded, "The real or exaggerated fear of resource shortages and declining standards of living in the past involved nations in warfare. Every member of the United Nations is deeply interested in preventing a recurrence of that fear and of those consequences. Conservation can become a major basis of peace." Furthermore, Mr. Truman pointed out the value of such a conference in mobilizing scientific knowledge and effective forces for promoting technical assistance to underdeveloped countries.

Following the receipt of the President's suggestion, the Economic and Social Council, fully cognizant of the "need for continuous development and widespread application of the techniques of resource conservation and utilization," called the above-mentioned United Nations Scientific Conference on the Conservation and Utilization of Resources (UNSCCUR) to concern itself primarily with the practical applications of science to resource management and human use rather than with minute refinements in research and scientific methodology.

The conference, attended by 706 participants from 51 countries, was designed to mobilize the scientific and practical knowledge "essential to equip the nations of the world for the task of raising and maintaining the living standards of their people." The value of bringing together scientists, economists, engineers, sociologists, resource administrators, educators, and other specialists in resource fields to exchange knowledge and share wisdom in a common cause was emphasized in the welcoming address by Secretary of the Interior J. A. Krug. "That cause," Secretary Krug continued, "is the improvement of man's standard of living, particularly in the under-developed areas of the world thru the protection and wise use of man's common heritage of natural wealth, wherever it may be.

"This is no selfish purpose. . . . It is a step in the direction of using the world's resources for the benefit of all its people. It is a great stride toward international teamwork on a high plane of knowledge and skill. I think you are participating in one of the greatest adventures of human will and mind in this century. . . .

Real conservation can remove economic pressures and fears of scarcity which have always played a large part in bringing on wars.

"Conservation touches not only the ability of the people to live well; it touches their ability to live at all. Conservation and wise development of our resources would insure world peace."

In another plenary session Secretary of Agriculture Charles F. Brannan maintained that this meeting would help lay the groundwork for President Truman's program of aid to underdeveloped areas. "The Point Four Project could not be successful without knowledge of the world's resources."

Tho the conference was not a policy-making body and, therefore, drafted no resolutions or recommendations for future activities, the exchanging and sharing of ideas and experiences among specialists was considered by the participants to be of monumental value.

ORIGIN AND PURPOSE OF THE INTERNATIONAL TECHNICAL CONFERENCE FOR THE PROTECTION OF NATURE

UNESCO (the patron of the recently organized International Union for the Protection of Nature) received from the Economic and Social Council an invitation to participate in the first world resource conference and to give special assistance by organizing the UNSCCUR meetings devoted to conservation education and training. UNESCO accepted this responsibility and, moreover, decided that it could best "serve the cause of Nature Protection" by convening concurrently with UNSCCUR an International Technical Conference on the Protection of Nature (ITCPN) Lake Success, August 22 to September 1, 1949. This arrangement was mutually beneficial to both conferences.

Sponsored jointly by UNESCO and the International Union for the Protection of Nature, ITCPN—attended by 125 participants representing 110 scientific and international organizations from 31 countries—was planned to study problems closely related to those for study by UNSCCUR, to make the most effective use of its documents, to take advantage of the presence of the many specialists whose simultaneous participation in both conferences could greatly enrich the programs and discussions, and to avail itself of the organization—translators, secretarial aid, etc.—assembled for UNSCCUR. Thus, a twofold policy evolved, conservation and utilization of resources viewed in the light of economic and social

aspects on the one hand, protection of nature and a growing concern for world-wide conservation education of the public on the other.

The ITCPN, unlike UNSCCUR, was a policy-making body to draft desired recommendations for action on both a national and international scale. The conference was charged with a major responsibility of examining the most effective means of educating the general public to a better understanding of man's relation to his environment.

NOTABLE ASPECTS

In a brief article it is impossible to consider all the significant developments and notable aspects of both conferences. However, of prime importance was the world-wide interest and the active participation of experts drawn from diverse areas in terms of economic, social, cultural, political, as well as geographical factors, and also from a broad range in fields of specialization. For the first time on an international level business executives, administrators, scientists, economists, engineers, technicians, educators, sociologists, and other experts in other fields related to resource development and human welfare met to share their knowledge and experience; to study how science and technology can best be applied to the development of resources and to the raising of the standard of living; and, in the case of ITCPN, to formulate statements of a world-wide policy relating to the protection of nature and to conservation education.

Furthermore, the conferences were notable for the comprehensive treatment of resource problems viewed in the light of their many complex interrelationships. Thruout the sessions there was evidence of awareness of the fact that "effective utilization of even a single resource calls not on one science but many."

For promoting general consideration of related problems, approximately half of the UNSCCUR program consisted of plenary meetings treating of subjects of common interest to participants irrespective of their fields of specialization. With a preview dealing with the legacy of resource depletion in the light of the increasing pressure upon resources, the plenary sessions examined, among other problems, the interdependence of resources; the planning of land-use for full production; improved techniques for using and conserving soils, forests, fuels, metals, and minerals; creatable resources; the adaptation of resource programs; education for con-

servation; resource techniques for less developed countries; and the use of resources for the enrichment of human life. The final UNSCCUR plenary meetings reviewed the outcomes of the conference, examined its contributions to the continuing work of the United Nations, and constituted a symposium on future lines of study and direction for progress.

Thruout these general sessions, the contrasting views held by both authors of conference papers and discussants made for a more comprehensive treatment. Sir Herbert Broadley was cognizant of these conflicting viewpoints when on the one hand he insinuated the disquieting note that "so far, we have only just begun to realize the dangers of world population hungry, underfed, ill and discontented," and on the other hand he voiced the opinion that "we have only glimpsed the possibilities of increased food production on a vast scale. . . . We are preparing for a new day . . . confident in the assurance that victory is possible—nay, sure—if we have courage, plan intelligently, and use all the resources of this world aright." Thus, from Dr. Hugh H. Bennett's warning that "our greatest hope lies in changing the way we use and treat the land" if civilization is to escape a tragic decline, the broadened program included discussions of creatable resources and the possibilities of new developments in science and technology for harnessing the oceans and utilizing sun power to alleviate the ills resulting from food and commodity deficiencies in this rapidly shrinking world with an ever increasing population.

While the plenary programs treated of problems of common interest to all specialists, the other half of the UNSCCUR program constituted specialized meetings of which there were five sections convening concurrently. Tho daily variations occurred as to program topics, these sectional studies included problems related to the conservation and utilization of minerals, fuels and energy, water, forests, land resources, wildlife, fish and marine resources.

Further evidence of the comprehensive treatment of resource problems by UNSCCUR is the fact that the plenary and sectional programs included 550 papers by authors from 47 countries. The invited discussants, selected because of their outstanding work, were also world-wide in representation.

A different approach to renewable resource problems was facilitated by the International Technical Conference on the Protection of Nature which had two plenary meetings and eleven technical ses-

sions. Three of the technical sessions dealt at length with significant aspects of conservation education; six treated of ecological subjects; one examined problems related to frontier parks, and one studied problems relating to the activities at the central office of the International Union for the Protection of Nature in Brussels. The background material for the programs included 100 special papers and more than 30 miscellaneous papers, few of which were read, but most of which served as a basis for the stimulating discussions in the technical sessions.

Even a more comprehensive treatment of resource problems was further facilitated by the provision by both conferences for well-planned visual-aids programs and carefully-planned field trips to supplement the subjects studied in the meetings.

However, it is significant that both conferences recognized the importance of bridging the wide gap between the degree of understanding possessed by scientists on the one hand and by the general public on the other. This serious deterrent to progress in conservation was treated in a rather comprehensive manner by the ITCPN which devoted three sessions to an examination of the following topics: Techniques Used to Make the Public Nature-protection Minded; Use of These Techniques in Educational Institutions; and Application of These Techniques in the Education of the General Public. Dr. William Vogt, chairman of these discussions, assisted by Dr. R. H. Eckelberry, who served as discussion leader for the second group, guided the discussions based upon twenty-six conference papers prepared by specialists selected because of their outstanding contributions to specific areas in conservation education.

The background material for the UNSCCUR programs on education and training for conservation included nineteen papers and a comprehensive report, *Education for the Conservation and More Efficient Use of Natural Resources,* prepared by Alain Gille of the UNESCO staff. The above-named study was based upon an inquiry made in thirty-one countries to determine in each the role of education in effecting conservation practices and the methods used for encouraging the protection and more efficient use of natural resources. During one of the UNSCCUR programs, Dr. M. M. Coady of Nova Scotia held that the world-wide misuse of natural resources stems from ignorance, from lack of ownership, and from profit making and power seeking motives. Believing, therefore, that formal education in the schools is not enough, Dr. Coady maintained

that the short-cut to human progress is to mobilize the adults of the world for continuous learning—even if they now have little education.

Both conferences evinced a widespread recognition that only an education based on scientific findings and designed to facilitate national understanding can make possible the wise use of natural resources, a requisite for establishing conditions favoring continuous peace and living conditions fit for mankind. Universally recognized was the inadequacy of present-day education for conservation even in the more advanced countries. Moreover, the belief was prevalent that the first condition of success in vitalizing conservation and, thereby, improving human welfare "rests upon an immense educational task." Yet, in spite of the emphasis placed on the urgent need for conservation education, the number of educators invited to participate was small. Their representation was not in proportion to the weighty responsibility which devolves upon them.

The ITCPN, unlike UNSCCUR, was notable for the pronouncements which it formulated. Among other things, the resolutions adopted deal with such subjects as the development of an adequate methodology for the study of human ecology; the introduction of the teaching of the principles of conservation and nature protection in all schools at all levels of learning; the establishment of a Permanent Joint Commission on Pesticides or some other appropriate means of coordination to deal with the problems of insecticides; the preservation of vanishing species of fauna and flora; the establishment of control over the introduction of exotic species; the facilitation of duty-free exchange of films, books, and other documentary material dealing with the protection and conservation of renewable resources; the promotion of international fellowships for study and training; and the encouragement of the greatest possible degree of collaboration between the organizations concerned with nature protection and conservation and those concerned with the utilization of resources.

Of the twenty-three resolutions adopted, five relate specifically to conservation education and training. Most significant among these are the following:

"*Resolution No. 1*

WHEREAS: The United Nations and its Specialized Agencies are studying programmes of technical assistance for under-developed countries, which programmes to be effective require the application

of human ecological principles, ecology being understood in its widest sense to include all human relationships—individuals and groups—with the problems discussed, it is essential that existing information should be collected and new studies that are urgently needed should be initiated;

WHEREAS: It is recognized that one of the first and greatest responsibilities of the United Nations and its Specialized Agencies concerned with the use of resources, and of the International Union for the Protection of Nature, is to increase knowledge of human ecology, and to assure its application on a scientific basis;

WHEREAS: This Conference recognizes the necessity of close and continuous integration of all programmes and methods for the study of human ecology,

Therefore This Conference Resolves: That the International Union for the Protection of Nature recommend to the above-mentioned bodies the promotion of studies of suitable areas as a step towards the development of an adequate methodology for investigation of human ecology; . . ."

"*Resolution No. 6*

The Conference Resolves: That the International Union for the Protection of Nature recommend to UNESCO that it inform governments of the vital need for the introduction of the teaching of the principles of nature protection and conservation in the curricula of primary and secondary schools, and of universities and technical colleges, either as special courses or as part of existing one related to the subject matter."

Unquestionably, these two conferences mark an important event in the history of conservation. They contribute much towards arousing world-wide conservation consciousness, towards developing world understanding in many significant phases of conservation problems, and towards establishing action programs designed to effect harmonious relations between man and his habitat. These prerequisites to a dynamic role for conservation further the preservation of human welfare and the establishment of continuing peace among divergent peoples.

A GEOGRAPHIC STUDY OF THE VILLAGE OF COTOCOLLAO, ECUADOR

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Colegio Americano, Quito, Ecuador

LOCATION

Located Northeast of Quito, in one of the intermontane basins of the Andes, is Cotocollao, a town having an urban relationship to Ecuador's capital. Nevertheless, it is possible in Cotocollao to turn back the clock, leave the modern world of machines, and enter an environment where the source of power for labor is the human body assisted by that ever-patient and dependable little animal, the burro. The Indians and mestizos of Cotocollao are little more than sleepy beasts of burden, whose existence, though happy and carefree, is based on a struggle for life's fundamental necessities, food, clothing, and shelter. Luxuries are as foreign to the citizen of Cotocollao as his want and privations are to the wealthy.

THE VILLAGE

Dwellings lining the ancient cobblestone streets are distinctly geographic in aspect, being constructed of adobe, an attribute of the environment.

The plaza or public square of the village is indicative of the process of acculturization accomplished as a result of the Spanish conquest of the Sierra. "Tiendas," stores and shops, are prominent and famous for their "choclos," green sweet corn either on the cob or cut off; chifles, fried banana chips; and empanadas, dough stuffed with rice, meat, corn, cheese or onions and fried in deep fat. Corn, meat, and cheese from farms in Cotocollao are used in making such delicacies.

AGRICULTURE

After leaving the plaza, distances between dwellings increase and agriculture becomes the dominant occupation of the populace (Fig. 1). In spite of primitive implements, such as stone hoes, digging sticks made of eucalyptus wood, and crude plows, agriculture is well advanced. Land is well cultivated, soil fertility is guarded, and the average Indian loves his plot of ground with a passion beyond normal comprehension. Corn, onions, garlic, potatoes, squash, beans, carrots, medicinal plants, and oats comprise the harvest of Cotocollao.

Harvested crops are transported, either by burro or human means, to Quito where they are sold in markets. It may be readily deduced that the produce of Cotocollao is very important in feeding the populace of Quito, which is, for the most part, employed in offices, stores, government work, or professional activities, and which is entirely dependent for its food supply on the husbandmen of the surrounding productive countrysides.

Manure is provided by animals such as pigs, chickens, and

Fig. 1. Garden containing squash, onions, potatoes, beans, and carrots.

sheep; human excreta is also used to increase soil fertility. Simple crop rotation is followed and legumes are usually planted in an area from which a crop of corn has been harvested.

Vegetation

Predominant vegetation at lower elevations consist of maguey and cacti indicative of the xerophytic character of porous volcanic soil.

At about 2,080 meters, with an increase of moisture, the vegetation pattern changes from drought resistant plants to phanerophytes, eucalyptus dominating. The eucalyptus, a savana plant

which grows in profusion in Australia, was introduced to Ecuador by President Gabriel Garcia Moreno.

With ample moisture assured, the eucalyptus grows in great profusion. Economically, this tree is of great significance. It is used as a fuel in the kilns of Cotocollao where ceramics are manufactured. Other uses include the manufacturing of furniture, and, as a common household fuel.

Beyond the altitudinal zone of the eucalyptus, is the lush grass

FIG. 2. Typical dwelling of Cotocollao.

of the paramo, a grassland located above the snow-line. Here, vegetation adjusts itself to climatic factors of wind (accounting for the tufted appearance of the dominant plants, grass); moisture; and freezing temperatures. Man, too, makes an entirely different adjustment to his environment in that pastoralism becomes the dominant activity. Sheep, goats, and cows are herded and driven in transhumance rotation to various pastures provided by the paramo.

HABITATIONS

Habitations, constructed of materials indigenous to their site, are, therefore, distinctly geographic (Fig. 2). Altho individual

dwellings differ somewhat as to size, number of rooms, and materials used, they are essentially similar. The majority of huts are built of adobe, cornstalks, and thatch. Doors are usually of wood and windows consist of portals in walls with no glass or screening. However, sometimes, crude blinds are used to shut out rain or sunlight. Interiors of huts are dark. In general household furnishings include: bedsteads; mortars and pestles; pottery; crude fireplaces used to cook the daily fare; raw wool; and sacks or woven baskets filled with corn or other grains awaiting transport to Quito markets.

FIG. 3. Woman grinding corn in a typical stone mortar. Note hollowed wooden bowl and conical pot in the background.

Women pounding out cornmeal in mortars and storing the ground corn in stone receptacles are seen frequently (Fig. 3). If mealtime is approaching, huge pots, conical in shape, may be seen suspended over a fireplace. The fireplace usually consists of three, large, rectangular stones arranged in a semi-circle. The stones are placed so that when the pot is put over the fire, it is supported by the rocks, and, at the same time, suspended over the flames.

Household animals such as guinea pigs and rabbits are very popular and scoot about the house unconcerned that they will soon be eaten as delicacies. Chickens, pigs, sheep, and dogs are also kept.

ACTIVITIES

Manufacturing. For the most part, villages located north of Quito are endowed with geographic attributes of site, which, when utilized by man favor the development of handicrafts. To illustrate this, several villages located north of Quito may now be cited as examples. Pomasqui has a cord sandal or algargatas industry which is based on utilization of the maguey plant which grows in profusion in the arid soil of Pomasqui (Fig. 4). Pomasqui is geographically

FIG. 4. A family in the village of Pomasqui making alpargatas.

located in the lee of rain-bearing winds. Its aridity is a natural outcome of geographic location in relation to orographic factors. Manufacture of cord sandals is limited to sites where maguey or agaves grow. Thus, we see, in the case of Pomasqui, that the climatic factor of aridity and the resulting plant growth has influenced, thru man's adjustment to the attributes of his environment, the development of home industry.

San Antonio, also located north of Quito, is noted for an industry unique to its geographic position. The soil of San Antonio is composed of calcareous material[1] which is mined, transported to

[1] Monte pululagua "cal cruda."

kilns, heated until the impurities are removed and a residue called "cal calcinada o viva" remains. This last used in cities for "white-washing" houses.

Cotocollao is also one of the villages of the north which is endowed with certain geographic resources enabling it to develop home industries. Cotocollao is famous for its adobe bricks and ceramics which are sold in Quito and surrounding villages.

Weaving. Weaving is a home industry and pursued largely to fulfill family necessities. Fluff provided by the "sixe" plant, a type of grass, is utilized. A long wooden stick is used to wind the fiber into thread. Wool, of course, is also used. Weaving in Cotocollao, however, is on a primary[2] level, and, cannot be compared with the advanced skill of the Otavalenas.[3]

Fig. 5. Outside oven used for baking bread.

Potable Water. None of the dwellings is provided with running water. Habitations located at higher altitudes, nearer the paramo, depend on streams and rivers for drinking water. Dwellings located near the plaza obtain potable water from a public fountain which provides water from government wells.

Washing. As tradition has decreed, Indian women of Cotocollao carry the family wash to a nearby river. Here, lather obtained from the century plant's leaves is used for soaping; clothes are pounded and slapped against huge boulders and rinsed in cold mountain streams until clean. While the women wash, young children sit along the banks of the rivers awaiting their mothers' return to their homes. Clothes are spread on bushes or along the grassy banks to dry.

[2] Primary level, initial stage of development.

[3] Otavalenas, Indians inhabiting the village of Otovallo, located 75 miles Northeast of Quito.

Baking. Baking bread is accomplished in outside ovens (Fig. 5). A fire is built in the bottom of the oven; the dough, usually cornmeal flour, is pushed into the top part of the oven on a long wooden shovel, and removed in the same fashion when completely baked. Corn-bread is the staple.

Sanitation. Sanitation facilities are unknown in the Indian's way of life. He resents hygienic customs as he does the "white" intrusion on his way of life and traditions handed down by his ancestors. The Indian persists in living in the same house with his animals. Many diseases are carried by rabbits and guinea pigs which share the domicile with their master.

Food is prepared in a very rudimentary fashion. Infection through uncleanliness is dominent among the Indians.

CONCLUSION

Cotocollao is located on the geographic periphery of the capital of the Republic. Therefore, it can be readily seen that influences from the city of Quito have greatly affected the culture of Cotocollaons. The former tribal organization found in areas further removed from the center of social, political, and economic life has been totally eliminated in Cotocollao as a result of its urbanization.

Life in Cotocollao is an excellent example of man's adjustment to attributes of his environment. Here, agriculture dominates and, as has been demonstrated, life adjusts to geographic factors of altitude, rainfall, light, soil, and natural vegetation.

THE WORLD'S GREATEST INLAND SEA—THE MEDITERRANEAN*

W. O. BLANCHARD
University of Illinois

Altho the Mediterranean basin actually includes parts of three continents, it is usually regarded as a geographic province of Europe. The Near East and north Africa have their commercial, political and cultural ties mainly with people across the Mediterranean. That sea has been a far less formidable barrier than the vast mountains and deserts in the interior of Asia and Africa.

While considered a geographic region of Europe, the Mediterranean region is unusually distinctive. Its lands are not merely an extension of north and central Europe; neither are its waters just an arm of the Atlantic. Shut off by an almost continuous wall of mountain and plateau, it is dominated by its master feature—the Mediterranean Sea itself—in many respects a most unusual body of water. The term "Mediterranean" has come to designate one of the most distinctive regions of the earth.

THE FACTOR OF SIZE

The Mediterranean is by far the world's largest inland sea. From its surface, there could be carved a dozen waters; each one as large as all of our Great Lakes combined or, if you prefer, it would make half a dozen Baltics.

Its depths are equally impressive, almost a mile on the average, nearly three miles in its deepest part. It is interesting to note in passing, that all three of Europe's northern seas, the North, Baltic and White, have negligible sections over 600 feet deep, while in the south, the Mediterranean, Black and Caspian, have extensive areas more than ten times that depth.

Here then is an enormous volume of water, a major earth feature, which by sheer bulk alone, is bound to impress its own peculiarities upon the entire region about it.

* The following are other geographical studies of Europe's coastal waters by the same author:

1. The Baltic Sea—Commercial Blind Alley, JOUR. GEOG. 43, 2, 1944, 62-70.
2. The Curious Caspian, *News Map Mag.* 2, 7, 1940, 14-15.
3. The Black Sea and Its Borderlands, Trans. Ill. State Acad. Sci., 35, 2, 1942, 111-112.
4. Seventy Years of Suez, *Sci. Mo.* 50, 4, 1940, 299-306.
5. Gibraltar—The Rock and Strait, *News Map Mag.* 3, 2, 1940, 2-6.

SHAPE

Unlike its American prototype the Caribbean, the Mediterranean has a decidedly elongated form. In fact it is about four times as long as it is wide. If superimposed upon southern United States, as shown in Figure 1, it would reach from coast to coast. This shape is highly advantageous commercially and its deep penetration gives Asia what amounts to a water frontage on the all-important North Atlantic.

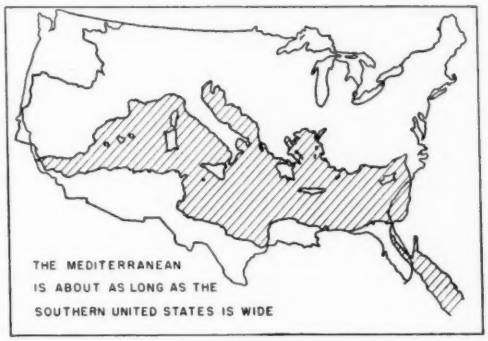


FIG. 1

The Mediterranean coast presents an almost infinite variety of forms. The African-Asian portion is markedly regular; the European, on the contrary, is a series of peninsulas, islands, bays and straits. The latter coast has approximately twice the length of the African section. Only one of the peninsulas, the Balkan, has been severed by a ship canal. The Corinth Canal, only four miles long, saves a maximum of 175 miles but it is narrow and troubled by a swift current.

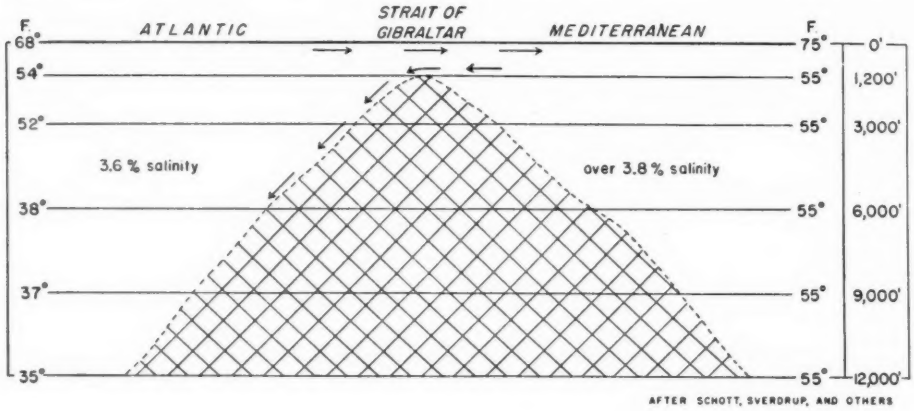
The great variety of relief found about the margins is duplicated in the Sea bottom. If drained, instead of a single long trough, the depression would be found to be divided into a series of great caldron-like basins separated from each other by ridges which are both narrow and steep. Some of these partitions appear in places above the surface as capes, peninsulas and islands. Extensive faulting as well as violent folding have combined to produce these remarkable irregularities.[1]

One of these ridges divides the whole Sea into two major sections—an eastern and western basin. Italy, Sicily, Malta, and Pantellaria are visible portions of this submarine ridge. The eastern basin is about twice the size of the western and it lies much farther south, an important factor in bringing the desert to the water's edge. This narrow constriction between the east and west basins, like the Gibraltar and Suez gateways, is of great strategic importance, especially in war time.

[1] There has been reported in one place, at least, a difference in depth of 1,500 feet in the short distance between the prow and stern of a ship.

Tho historically old, the Mediterranean is geologically young; in fact, it has been formed since man has been on earth, and it is still growing. Numerous volcanoes, some of them active, as well as many crater lakes, lava and cinder deposits and frequent earthquakes, all bear evidence of its geologic youth. These "growing pains" are not merely of academic interest; they are serious factors in the economy of extensive areas of the region.[2]

Junction of the Mediterranean with other waters is effected at three places. In the northeast the Bosporus, Marmara and Darda-



WATER TEMPERATURES, SALINITY, AND CURRENTS
IN THE STRAIT OF GIBRALTAR

FIG. 2

nelles gives access to the Black Sea, a sort of "blind alley" alcove. In the southeast, the Suez isthmus has been cut making a sea-level ship canal junction with the Red Sea and Indian Ocean. At the western end, Gibraltar Strait gives access to the North Atlantic.

GIBRALTAR STRAIT

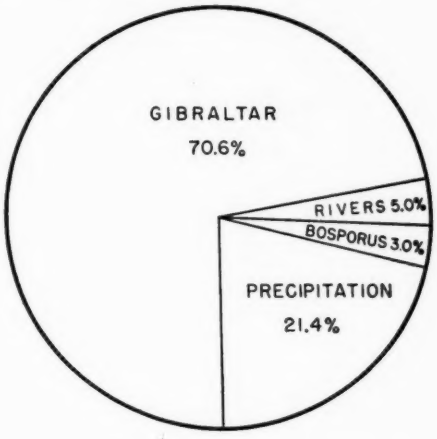
To the world at large the name Gibraltar stands for the great rock fortress, but it is the strait at the foot of that promontory which has most notably influenced the waters of the Mediterranean.

This gateway is very narrow, about eight and one-third miles at one place, and likewise very shallow since it is crossed by a submarine sill which rises to within some 1,200 feet of the surface. The

[2] In southern Italy the fatality rate due to earthquakes averaged about 1,000 per year for a whole century.

constricted width almost eliminates tidal movement east of the strait while the submarine ridge prevents the entrance of the deep cold waters of the Atlantic.

The Mediterranean is a region of small precipitation but large evaporation.[3] Run-off is also small. This adds up to a marked deficiency in water and a high degree of salinity.[4] The volume deficiency is compensated for by a strong inflowing surface current thru Gibraltar. The higher density of the Mediterranean water results in a somewhat smaller outflow at depth. This latter pours over the sill like a submarine waterfall as shown in Figure 2. There is a similar but smaller exchange with the fresher waters of the Black Sea. The balance sheet of intake and outgo is shown in Figure 3. It will be noted that about 70.6 per cent of the water deficiency is made up by the excess inflow at Gibraltar. There is practically no current thru Suez.



MEDITERRANEAN WATER BALANCE
AFTER SCHOTT, G.

FIG. 3

This rigid control exercised by the Strait is reflected in the waters of the Sea which are not only high in salinity but in temperature as well. The temperature status is also shown in Figure 2. It will be found that in winter for the surface waters, there is little difference in the two sides of the Strait, but at depth, say anything beyond 300 feet, the Mediterranean shows 54° to 56°. In the Atlantic at depths of 12,000 feet or more the water temperature is 34° or 35°. For summer, the surface waters of the Sea get very warm, but at depth they remain about the same as in winter.

On the whole, then, the Mediterranean is a huge reservoir of very warm and very salt water. Its influence, combined with that of the mountain wall which excludes northern cold winds, makes the

[3] The evaporation rate in the Mediterranean is estimated to be about one-third greater than in the Atlantic in the same latitude.

[4] The salinity is about four times that of the Baltic.

climate of the entire region considerably warmer than normal for that latitude.

Tides and Currents

The limited communication thru the Strait is also important in influencing the movements of Mediterranean waters. Tidal movements are almost lacking and the general circulation, a counter-

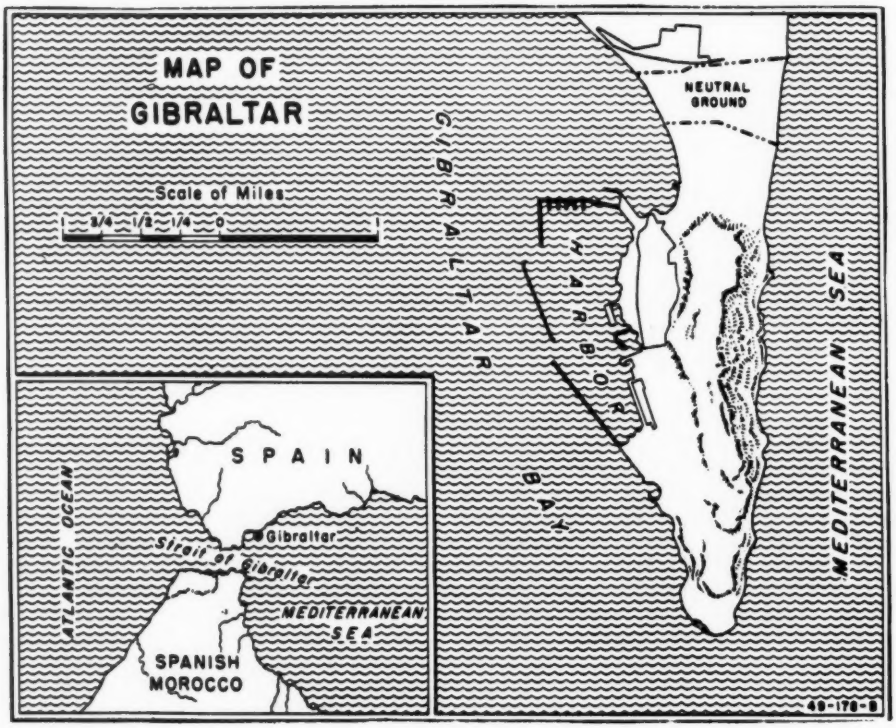


Fig. 4

clockwise current, is rather weak. The rise and fall of the waters is more often due to winds and currents than to the moon.

In ancient times the near absence of tidal movement was an advantage to mariners. The small craft then in use could be beached almost anywhere. However, without the tidal wash, rivers have tended to form deltas, bad, both as sites for port cities, and for navigating the rivers.

The current which skirts the Mediterranean with its load of silt, has made it necessary to locate ports to one side of the river mouths and away from the drift of the current. Alexandria, Venice, Marseilles and Barcelona illustrate this control. Port Said and the

Suez Canal opening, by necessity located east of the Nile delta, has a constant struggle with the silt from that river.

RESOURCES

The fish resources are in decided contrast to those of northwestern Europe. The waters are mostly very deep and both temperatures and salinity are remarkably uniform. This latter discourages currents which distribute oxygen and food. The warmth ex-

FIG. 5. Looking north across the Strait. British patrol bomber practising with smoke bomb. Courtesy British Information Office.

cludes such important commercial temperate zone fish as the herring, cod and halibut and substitutes the less valuable tuna, sardine and anchovy. Fishing has always been a source of local food supply carried on by small operators, using rather primitive methods, and with meager returns. The number of species is large, but the fish are small and bony. There is a large fish import from Atlantic countries.

Salt production from the Mediterranean waters is an age-long industry for recovery conditions here are almost ideal. High salinity and a high evaporation rate makes it possible to admit the waters to shallow lagoons, close them off and then let the sun do the work.

Location Important

The location of the Mediterranean has been of the utmost importance both climatically and commercially.

The large size, the warmth of its waters and the location in the transitional zone, westerlies in winter and trades in summer, have provided the only combination of favorable factors over an extensive area of the earth with the Mediterranean type of climate. The Sea is large enough to be the basin's principal source of precipitation while its location determines the seasonal change in amount—the most characteristic feature of this type of climate.

As a commercial highway the Mediterranean is distinctive in two respects. In point of age, it is the oldest of the world's great water routes; in importance, it has always ranked among the first two. From prehistoric times to the Age of Discovery, it was a fairly important link between East and West. The discovery of the Cape Route directed most of this traffic around Africa for the following three and one-half centuries. Finally, the opening of Suez some eighty years ago restored most of the trade to the Mediterranean-Suez waterway.[5]

In functioning as a highway, the Sea has had the advantage of a most unique location. It lies athwart the world's greatest land mass and helps to join the two most densely populated regions of the globe. Competing routes are seriously handicapped—those on land, by mountains and deserts; those on water, by long distance. It also provides above it, a convenient channel for air traffic free from the interference often encountered by planes in crossing political boundaries.

The cutting of Suez converted the Mediterranean from a blind alley to a thru route and most of its traffic today originates east of Suez and west of Gibraltar. In 1948 the Canal accommodated almost 50 million tons of cargo—over half of it, petroleum. The countries bordering the Mediterranean are not richly endowed and while the Sea is absolutely essential to their economy, their contribution of traffic is far overshadowed in size by that of the lands far beyond that water. For these latter, it is now and must remain the "Ocean Superhighway."

[5] Other developments added their impetus to the rejuvenation of traffic. The steamship came on to the scene about the same time as the building of the Suez and eliminated the difficulty of uncertain winds of the northern Red Sea. In recent years, overland traffic eastward from the Mediterranean has been stimulated by automobile, pipeline and air service routes.

COMMON GOALS FOR RURAL EDUCATORS AND GEOGRAPHERS*

C. O. FITZWATER
National Education Association of the United States

A careful analysis of major trends in rural life reveals some of the areas for cooperative effort on the part of geographers and rural educators. Certainly geographers and rural educators have a common interest in assisting rural people to establish school districts large enough to assure better educational opportunities. Careful painstaking research has disclosed optimum and minimum sizes. However, rural school people recognize that a state or county cannot be subdivided without regard to patterns of association of the people—their homogeneity as regards common social and economic interests, climatic and topographic conditions, and particularly barriers to communication. The geographer's knowledge of the physical resources of a given area and his understanding of the people's changing relationships to their physical environment is needed to help rural people recognize that structural patterns quite adequate for pioneer days may be grossly inadequate for providing the education needed by rural people today.

A second area of common interest exists because both geographers and rural educators recognize that a year or two spent in the elementary school on study of the local community is not sufficient to prepare people to deal effectively with the local environment. Altho a young person's learning of geography should begin with his home locality and spread from there to state, region, nation and beyond, there is imperative need for reinforcement and broadening of understanding of the home environment. In other words there should be a return to the "home base" for a replenishment of the learner's stock of ideas which will not only enable him to understand better what he has learned about other peoples and other lands but will also give him the techniques and know-how for dealing with problems in his own community. Such preparation cannot rightly be confined to the elementary school. High school youth should have learning experiences directly aimed at a better understanding of their immediate environment, its resources, its shortcomings, the promises it holds for increased levels of living. The

* Excerpt from a paper read at the Cleveland Meeting of the National Council of Geography Teachers, November, 1949.

same thing can be said for adults and out of school youth.

A third area embracing common interests and goals is the methodology of instruction. Since the turn of the present century when John Dewey's "School and Society" was published, school leaders have become more cognizant that learning is a growth and developmental process, that "pouring in" or imparting knowledge unrelated to life's problems and issues does not work. As a result, it is now recognized that good teaching is aimed at assisting people to solve problems of concern to them. However, implementation of the growth-process and problem-solving concepts demands teachers who are trained in ferreting out issues of real concern to people. Such teachers cannot satisfy requirements by manufacturing learning situations or by depending exclusively on children's interests.

The real, the live, the important problems and issues spring from the lives of people, the environments surrounding them, and in the ways they react to that environment. To give learning vitality, a goodly share of problems attacked should be "close to home." These problems can be readily observed and understood by pupils. More important, they can be solved. But to get this job done there must be a corps of teachers well-grounded in an understanding of the environment in which they work. Teachers must have a more profound understanding of the locality in which their pupils live; they should be given opportunity to study it first-hand during their pre-service or in-service training. In this, the contributions of geographers are essential.

A fourth major common interest, not only of geographers and rural school men but of people everywhere, is the conservation of our natural resources. The destruction of this country's physical resources by three or four generations of people stands as one of the greatest social immoralities of our time. What these years of thoughtless and often knowingly willful action portend for the future perhaps cannot be evaluated fully at present. This we do know: thousands of people driven from their homes by dust storm and flood; hundreds of thousands of people eking out a bare sub-standard level of living on once-rich soil long since robbed of its life sustaining powers; divided forest land, silt laden rivers, eroded and gullied hillsides, wasted minerals and fuels—these things we see. Moreover, we know that unless this wastage is stopped the future of on-coming generations will have been irrevocably determined by the present.

Rural people are largely the guardians of the nation's physical resources. Upon them directly, and indirectly thru their cooperation with governmental and other agencies, much depends. But in this, we cannot rely entirely upon the techniques, knowledges, and skills filtering from state and national agencies down to the local people. A thoro-going program of education is needed at the local community level for children, youth, and adults and involving the cooperative participation of all agencies and resources that can be of assistance. In this cooperative endeavor the resources of the geographer are essential. His contributions can give the people a deeper and broader understanding of the relationships of physical resources at the local level to community ways and standards of living as well as to state, regional, and national well-being. Equally important, he can assist school and community leaders in setting up action programs for improving local conditions.

Altho the ecology of plant and ainmal life has long been studied as to variation and adaptations, lately plant physiologists and nutrition experts have been exploring another aspect of environmental influences. These scientists have found great variations in the mineral and vitamin content of the same variety of vegetable grown in different sections of the country. They have found that the nutritive value of any food crop depends on more than soil fertility and on how the crop is cultivated, fertilized, and irrigated. Climatic conditions—amount of sunlight, temperature, atmospheric humidity, and wind movement—are also determining factors in nutritive value of plant and animal foods. One soil scientist[1] mapping rainfall-distribution and rainfull-evaporation ratios with variations in soil fertility, arranged a composite map showing patterns of soil construction and development for the country. Taking data on the incidence of dental caries among 69,000 Naval inductees, he spot-mapped their home addresses. His findings were:

> The concentration of dental caries gives a reciprocal curve of that for soil development under the climatic forces. The minimum of caries is in the mid-continental area of maximum soil construction. They increase in going westward from there to soils less developed, and more so in going eastward to soils more highly developed.

He further concluded:

> If all other body irregularities as well as those of the teeth were so viewed, it is highly probable that many of our diseases would be interpreted as degenerative

[1] W. A. Albrecht, "Our Teeth and Our Soils," *Annals of Dentistry*, Vol. 6, No. 4, December, 1947.

troubles originating in nutritional deficiencies going back to insufficient fertility of the soil.

Climatic conditions, state of soil development, nutritive content of foods, the health of people—these relationships are the concern of rural educators and of geographers.

A last major goal grows out of some of the trends in rural life mentioned earlier. American agriculture is employing fewer and fewer workers. At the same time there is an increase in part-time farming indicating that it is steadily decreasing as the total concern of farm people. Moreover, the number of commuters from the villages and open country surrounding cities suggests there are basic values in rural living that more and more people are coming to appreciate. But fully half all rural young people migrate to the city for employment. Many rural leaders deplore this mass exodus and wish it could be at least decreased. But rural young people will continue migrating until the situation is changed. They want opportunity and they will leave their homes to find it. Perhaps schoolmen, geographers, and others could help them. Rural villages have the manpower available for the establishment of local industries. They have the room for factory sites and for more housing. Many of them have right at hand the physical resources—raw materials, minerals, fuel and water supply—necessary to establishing a small plant or industrial project. But rural people need help in assessing and evaluating their resources to make continued progress possible.

If our schools are really committed to the objective of improving the quality of community living, every aspect of living not being met adequately is within their province. And every individual serving the community thru its schools must assume his unique share of the task. Here is a job to be done: helping the people to help themselves. Geographers and schoolmen have a common task in helping them.

GEOGRAPHY IS VITAL TO THE BUSINESS STUDENT

L. M. WANTLAND
Centenary College of Louisiana

The need for a broader knowledge of the keen competition among the nations of the world as against the immediate and practical demands from without is clear and decisive. There was never a time in American history when it was so necessary for students and scholars to have an appreciation of the world-wide situation concerning land distribution and the basic economic problems involved as it is today. The truth of this statement no one can challenge.

Education seems to be the best solution. Education may be defined as a process of helping individuals to react satisfactorily to their environment. This process includes the gathering of information, growth in knowledge and understanding, and the development of right attitudes, appreciations, habits, skills and abilities.

In the consideration of the need for more courses in economic geography for students in many fields of study, and especially for those majoring in business administration, I should like to indicate certain essential aspects.

1. Economic Geography is helpful to accounting majors who may become comptrollers; hence they would need to know the sources of raw materials, costs of transportation, costs of marketing products in various areas, and so on. For industrial management students the course provides a background of information relating to the sources of materials, possible plant locations, transportation of raw supplies and finished products. Economic Geography correlates readily with the other basic courses. The background received in the Economic Geography course enables the student to understand better the specialized and more advanced courses he will encounter during the later years of his program.

2. Economic Geography is highly important in the field of marketing, in helping to solve the problems of distribution, in questions concerning de-centralization, in transportation, and in numerous other facets of our business world. A better understanding of Economic Geography would be of great value in drawing up recommendations for business developments.

3. Economic Geography plays a vital part in our business life. In some fields of endeavor it has a very direct concern with the business operations, and it is a high priority matter. I am thinking primarily of resources of the land from which important products and by-products are obtained.

An example of this is high grade oil reserves. As these reserves diminish, we face the problem of finding new resources, and among these is the possibility of processing low grade oils; provided, of course, it can be done at a cost in keeping with the results achieved. Consquently, we are doing a great deal of research in connection with processing such low grade oils, comparable to the extraction of iron from taconite.

RESULTS OF A QUESTIONNAIRE

One hundred questionnaires concerning the status of Economic Geography were mailed to college and university administrators in all sections of the country. Seventy-five questionnaires were returned from colleges and universities in Arizona, Arkansas, California, Illinois, Iowa, Kansas, Oklahoma, Louisiana, New York, Ohio, Pennsylvania, and Texas.

62 out of the 75 institutions offer Economic Geography.
59 stated that the hours devoted to this course average eight.
44 average 4 hours required of business administration majors.
26 schools use business administration instructors to teach geography.
36 schools use geography or geology instructors to teach geography.
60 schools believe that their business administration majors should take an average of 3¾ hours of Economic Geography.

Virtually every department head agreed that we should offer more courses in geography and should stress particularly Economic Geography.

The following brief comments were selected from the statements of business administration heads in various colleges and universities. Unless otherwise designated, all of the schools mentioned are fully accredited four-year colleges or universities.

a. From New York City. Economic Geography. "Six hours are required for undergraduate and three hours for graduate students."
b. Niagara, New York. "This subject has suffered by neglect; most junior high school students are better informed on it than the average college student."
c. Columbus, Ohio. "Five or ten hours of freshman work for nearly everyone. Varying numbers of advanced course hours are required in the curriculum in marketing and even more in the curriculum in foreign trade."
d. Cleveland, Ohio. "Emphasis should be on *economic* rather than geographic."
e. Tulsa, Oklahoma. "Over 90 per cent of majors take at least eight hours of geography and geology."
f. New York University. "Economics students may now have a field of specialization in Economic Geography."
g. Abiline, Texas. "This field should be broadened, especially in view of the world position the United States has taken in the past few years."
h. Commerce, Texas. "In marketing (and other courses) many students display woeful ignorance of plain 'place geography' to say nothing of economic geography."
i. Houston, Texas. "Too few people really know enough about the commercial resources of their own state and nation."
j. Philadelphia, Pennsylvania. Wharton School of Finance, an independent School of Commerce. "We determine our own curriculum in all aspects, and have required Economic Geography for almost half a century."

At both the University of Minnesota and the University of Oregon it is generally assumed that the business student needs to

have the broader background of climate, land formations, peoples, methods of production, and so forth, which is not presented ordinarily in the school of business.

BUSINESS MEN RECOGNIZE ECONOMIC GEOGRAPHY

The importance of Economic Geography is recognized by many commercial and industrial leaders. Mr. R. W. Burgess of the Western Electric Company says that a knowledge of various topics in Economic Geography is helpful in analyzing a considerable number of business problems. In the consideration of the value of this knowledge, Mr. Burgess cites the following examples: supply and demand factors bearing on the availability and price of the various raw materials which the company uses; possible markets for the company's products; effects of tariffs, quotas, and other restrictions on international trade; forecasts of industrial activity as affected by world business and political conditions; and geographic factors in this country.

Mr. J. E. Hill, assistant to the president of the United States Steel Export Company says, "We feel that the importance of a thoro knowledge of this subject cannot be stressed enough as basic knowledge in a company such as ours."

Mr. A. L. Janson of the American Tobacco Company says, "I am sure that anyone engaged in business would be sadly handicapped if he did not have some knowledge of Economic Geography. A well-developed knowledge of the subject would undoubtedly be of great help, particularly to the executive in business."

The Du Pont Company states that it is certainly desirable for any business administrator to be well grounded in economic Geography.

The Aluminum Company of America submits, thru one of its representatives, the following assertion: "An affirmative answer to your question is quite obvious to us: economic factors of geographic significance are definitely important in the aluminum industry."

From the Firestone Tire and Rubber Company comes the following comment: "I am sure it will be obvious to you that the economic success of many companies is completely dependent upon their geographical locations in regard to transportation, tax, labor and power costs."

Mr. George Vidal, publicity director of Sears, Roebuck and

Company, states, "Because of the fact that our concern is a distribution agency operating in all parts of the nation, we have for many years watched closely the growth and development of different areas. There are many other instances where we have foreseen business opportunities based on favorable factors having to do with the geographical location of certain areas, and we have capitalized on them in a very important way."

The General Foods Corporation draws its raw materials from all over the world, and their markets are spread over an exceedingly wide area. For these reasons they believe that a knowledge of economics and geography—and particularly integrated—would be of definite value to anyone considering entering their field.

RESULTS OF OTHER SURVEYS

From a survey conducted by the United States Office of Education, it was found that approximately 68 per cent of all institutions of higher learning offered at least one course in geography; the exact figures were 689 out of 1,015 colleges and universities surveyed. Professional schools and junior colleges were not included in this survey. When sufficient courses were offered for a major or minor in geography, Economic Geography was nearly always offered; and the same condition was true in those institutions which offered only one or two courses in geography. When Economic Geography alone is offered, it is given in most cases by the school of business or commerce, or in the department of economics; and is all too often taught by an instructor who is untrained in the subject. Apparently, then, Economic Geography is the most widely offered course in geography—probably one-half the colleges in the country offer such a course or courses. Unfortunately, however, the South —in general—has lagged behind most other regions in the offerings of geography.

On June 23, 1948, the Southwestern Publishing Company completed an analysis of a total of 1,303 college catalogues in order to obtain statistics on various college courses. They found that Principles of Economic Geography is being offered in 527 colleges and universities; this figure represents a total of 40.5 per cent. In addition, 2.7 per cent are offering a course entitled Economic Geography of the United States; 2.1 per cent provide a course entitled Economic Geography of North America. Economic Geography of South America is offered in 2.7 per cent; Economic Geography of Europe

in 2 per cent; and Economic Geography of Asia in 1.2 per cent—a total of 51.2 per cent.

It is interesting to note also that many schools are offering a very recent course called Conservation of Natural Resources. This new course is offered in 160 colleges in the survey, or 12.2 per cent.

PURPOSES OF ECONOMIC GEOGRAPHY

Economic Geography has both practical and economic purposes. It is all too obvious that it is the opinion of many major companies that courses in Economic Geography would be of definite value to a business administration student as a very essential part of his general college education. Broadly speaking, Economic Geography deals with the inter-relationship between the physical environment and man's productive occupations.

The two most common methods of approach to this subject are (1) regional and (2) topical. The regions may be political, climatic, based on relief features, or based on the chief products sold.

Practical Purposes of Economic Geography

1. Provides students with facts about sources of foodstuffs and raw materials, their manufacture and distribution.
2. Students learn reasons for the location of industries, including both natural and human factors.
3. Outlines a study of the factors affecting trade between nations.
4. Provides a survey of the principal nations from the standpoint of their productive regions and leading products.
5. Shows relationship of factors affecting production.
6. Opportunities to discuss the values of strategic materials which affect trade and international relations are necessary to an understanding of much of the foreign policies of nations.

Cultural Purposes

1. Geography is a broad, inclusive subject and helps to bind together the principles learned in economics, anthropology, climate, and other sciences and courses.
2. It provides information needed by any educated person about the world, the economic basis for industries, international relations, and domestic problems.
3. The study is concerned with dwindling resources of minerals, timber, and forests which must be maintained or substitutes found—if our present standard of living is to be retained.
4. The study of Economic Geography is valuable for an intelligent citizenship in the future, for intelligent reading, and for drawing conclusions from the news.

Other Uses

1. Provides experience in interpreting maps, including those of distribution of commodities, and main trade routes.
2. Shows the practical use of statistical information.
3. Applies to urban planning and regional planning, both of which are fundamentally applied geography.

4. Because geography is a dynamic subject, and the facts are constantly changing, it is of value—especially to students of business and politics—to learn that few factors are static; and that if one wishes to succeed in business or show political stability, he must learn to draw conclusions based on the constantly mobile conditions.

CONCLUSION

From the abundance of proof offered, it is obvious that the consensus of opinion is that a knowledge of Economic Geography gives a student an appreciation of the world-wide situation concerning land distribution and the basic economic problems involved; and that such courses should be offered in the freshman or sophomore years—along with other basic subjects (Introduction to Business, Economic History, and Principles of Economics)—to every student of Business Administration.

ECONOMIC GEOGRAPHY LECTURE MATERIAL

ALEXANDER WARRINGTON
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Raw materials and industrial operations thruout the world comprise a sizeable portion of most courses in economic geography, roughly from fifty to seventy per cent.

Lectures on raw materials and industrial operations are usually more effective if they are in the words of the industries themselves. This can be accomplished thru study of the many releases that emanate from the various factories, processing plants, and assembly stations thruout the United States and the world.

But a word of caution is in order so that hopeless confusion will be prevented. A standard textbook must be adopted in any economic geography course, and the lecture material must be attuned to the textbook order of presentation.

Let us analyze briefly some of the material available from the industries and which can be used to good advantage in preparing lectures.

The Story of Blue Coal, The Delaware Lackawanna and Western Coal Company, 120 Broadway, New York. The application of this study to economic geography may be appreciated by noting the following subjects: the earth two billion years ago; era beginning with the creation of man; Marco Polo; and anthracite and the Revolution.

Petroleum Facts and Figures, an annual publication of the American Petroleum Institute, New York, is one of the best statistical publications on the subject, which can be supplemented with numerous other releases for lecture fluidity. Students are always interested in reserves and *Proved Reserves of Crude Oil, Natural Gas Liquids,* and *Natural Gas* will supply this information. It is a joint publication of the American Gas Association, New York, and the American Petroleum Institute.

The American Iron and Steel Institute, New York, has an excellent booklet, *The Picture Story of Steel.* The table of contents is somewhat lengthy to repeat here; so we will generalize: technology, classification of steel consumers, and categorical breakdowns.

The non-ferrous list contains hundreds of interesting and very informative pamphlets and booklets available. *The History of Copper and Brass,* Copper and Brass Research Association, New York, can be used in the college class room. *The Zinc Industry,* The American Zinc Institute, New York, presents the early history of zinc, uses and production. As an example of new technology: *The Best Joint Designs for Silver Alloy Brazing,* Handy and Harman, New York.

Some of the publications of The Cleveland Quarries Company, Cleveland, Ohio are arranged in files and the illustrations are in beautiful colors. *History of Glass,* American Glassware Association, New York, presents a very good composite history of this important material. Many other publications could be listed on the organic and inorganic building materials.

Metal fabrication is such a vast subject that it has been handled by the professor in a manner best suited to convey a basic theme. *Industry-Research Conference,* Agricultural Research Center, Beltsville, Maryland is a good approach to material on a seminar level. *100 Million Motor Vehicles,* Automobile Manufacturers Association, Detroit, presents basic statistical information in a lively style with numerous photographs. *Prize Bridges,* American Institute of Steel Construction, Inc., New York, is one of the best releases available on this subject; and an understandable treatment of railroads will be found in *A Practical Evaluation of Railroad Motive Power,* Steam Locomotive Research Institute, Inc., New York.

General considerations of the forest industries of the world and the United States with more detailed treatment of the area in which the university happens to be located accomplishes most of the aims of economic geography. *The Southern Hardwoods,* Southern Hard-

wood Association, Inc., Memphis, gives a good descriptive enumeration of the more important commercial timber crop. As to policy—a subject that is receiving more and more attention—we mention: *Forest Conservation Policy Statement,* Southern Pine Association, New Orleans.

The Story of Corn and Its Products, Corn Industries Research Foundation, New York, may be used as an introduction to agricultural economics. The National Farm Chemurgic Council, Inc., New York, approaches the entire problem of economics and geography in the following manner: A—New, non-food uses for farm crops and their residues and by-products; B—New and profitable uses for previously unused plant materials; C—New Crops that farmers may grow profitably; D—More valuable uses for presently used crops thru chemurgic upgrading.

The professor in economic geography will be expected to interpret more and more the relationships between: Patterns of Soil, Climate, and Vegetation. The studies enumerated in the above paragraph would be a very definite step in the right direction, and all of the reports mentioned in this article have that objective in mind, Properly presenting economic geography involves a great deal more than casual acquaintance with textbook material.

On the cereal list, wheat is the logical starting point, and the introduction might be economic history. The Wheat Flour Institute, Chicago, handles the subject adequately. American Feed Manufacturers Association, Chicago, publishes a great deal of factual material in a succinct style.

Fruits and vegetables are pertinent to the "pattern discussions" already mentioned. The Giannini Foundation of Agricultural Economics has worked closely with the University of California and has studies available that deserve attention. *The Story of the Banana,* United Fruit Company widens our understanding not only of the banana, but of the whole field of agricultural economics. Scholarly studies have been released by the American Institute of Food Distribution, Inc., New York.

The *Story of Tea,* American Education Press, New York, gives us both an historical and economic review. It would be difficult to find a better treatment of the spices than in: *A Manual of Spices,* American Spice Trade Association, Inc., New York.

A minimum of fifty minutes is devoted in most economic geography courses on meat. *Meat Packing,* American Meat Industries,

Chicago, will supply the essential data. Related materials, such as milk, can be discussed on university level by using releases of the National Dairy Council, Chicago.

The Romance of Leather, Tanners' Council of America, New York, should receive some kind of acclamation; and the same thing can be said of *Crude Rubber,* The Rubber Manufacturers's Association, Inc.

Industry has made tremendous contributions to the whole field of higher education and particularly in those fields that we associate with economic geography.

Here is a partial quotation from a letter received by the writer from Alfred P. Sloan, Jr.: ". . . I feel very strongly that the University should be better supported by industry. . . . Likewise that those concerned with education should know the problems of industry more intimately than they do. Progress can be stimulated by both approaches."

There can be no doubt about this, but the problem is how? The most logical answer to that question is in studying and using the publications of the industries and the trade associations as soon after their release as possible.

Interpreting Current Problems

We now come to a more difficult phase in the handling of economic geography and that is in the realm of interpretation of current problems. Here there is the danger of biased opinions being passed on to the students. The instructor who does not have some very strong opinions and convictions would be very rare; and yet it is desirable to avoid, as much as possible, being branded as either a liberal or a conservative.

After all, the chief mission is to give information as impartially as possible and permit the students to develop their own views; this, it seems, should be the objective of higher education.

People of recognition are often asked to speak before universities, on the radio, and at important functions. It is amazing how often these talks are pertinent to a problem worthy of class time. Ordinarily, copies of these talks may be procured in sufficient numbers so that every student may receive a copy. Reading these talks by the students, while the rest are following their printed copy is a good approach to the handling of current topics and interpretations. It tends to greatly stimulate interest in the whole subject.

Visual Aids

A word is in order on visual aids. A lecture on principal cereals can be greatly dramatized by such wonderful pictorial aids as those supplied by the Corn Research Foundation, New York, and the Millers' National Federation.

Visual aids need not be restricted to charts, graphs, and diagrams. The paintings of W. Langdon Kihn on Eskimo life, reproduced in the *National Geographic,* greatly stimulate attention to lectures on the Eskimo, the tundra and taiga.

National and international considerations ordinarily will make up the bulk of the syllabus. But some time would be spent to good advantage on the area where the university is located. Local area treatment serves a twofold purpose: better understanding of the area itself, and more pertinent illustrations of the subject as a whole.

Local chambers of commerce and trade associations are usually able to furnish the desired information. Then, too, there is a very distinct advantage in working with agencies of this character.

How can all this be accomplished? The biggest job is establishing all the contacts necessary, and this really takes several years. But as the information begins to trickle in, it can be used currently or set up for the next semester. The facts are relatively simple: the load on the professor in properly teaching economic geography is always much heavier than on the students; and the results obtained under a system of this kind certainly justify a rather considerable effort.

CHANGING ATTITUDES WITH DIFFERENT METHODS OF TEACHING GEOGRAPHY IN A TEACHER EDUCATION INSTITUTION*

HERBERT VENT
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An attempt was made to determine experimentally which of four teaching methods was best for teaching attitudes of social adjustment to students of college geography. The teaching methods used were (1) the group-project, (2) the lecture-outline, (3) the lecture-textbook, and (4) the individual study unit. Areas of social adjustment were (1) human understanding, (2) civic responsibility, and (3) world-mindedness, all operationally defined.

A survey of previous research indicated that little work had been done in methodology in geography. Some did relate to pupil gain, but had not dealt specifically with measurement of social attitudes by valid measuring instruments.

In the experiment four classes in a college geography department constituted the control group. Those taught by the group-project method consisted of seventeen upper division and graduate students; those taught by the lecture-outline method consisted of twelve upper division students; the group taught by the lecture-text-book method was made up of seven sophomores, juniors, and seniors; and the group taught by the individual study unit method consisted of twenty-six freshmen and sophomores.

The first problem was developing a test to detect changes in attitudes. The procedure used was a projective technique in which film strips dealing with the adjustment areas were shown at the beginning of the study and again at the end of eight weeks. All students in the four control groups saw the pictures both times. However, no commentary or writing explained them to the students. They, after seeing a film strip, wrote legends from the impressions left in their minds. The legends were compared with commentaries accompanying the films and were also carefully studied for responses that were of the nature of fantasies revealing covert and unconscious complexes. The responses were validated by means of personal interviews and the Bell Adjustment Inventory. With the latter there was a coefficient of correlation of .52 for the human understanding test;

* Abstract of a research study conducted at Chico State College for a doctorate at Stanford University.

.46 for the civic responsibility test; and .01 for the world-mindedness test. Personal interviews indicated that the world-mindedness test did not measure behavior measured by the Bell Adjustment Inventory.

From the initial test it was found that women scored better than men in the area of human understanding, and men scored better than women in civic responsibility. There was no significant difference in world-mindedness. Students with previous work in education scored higher in world-mindedness than those having previous work in geography. Intelligence was statistically shown to have no significance in the satisfactory and unsatisfactory ratings assigned to students.

The follow-up test of attitudes indicated that decided gains occurred in human understanding and world-mindedness. No appreciable gain was detected in civic responsibility. There was little difference in the standing of the sexes in human understanding as revealed in the final test. However, it does appear promising in view of the findings of this study that other adjustment attitudes besides human understanding and world-mindedness can be successfully taught and measured in geography courses. It must be understood, tho, that much additional research is needed to validate the procedure.

The lecture-textbook method brought about the greatest change in the mean scores during the course of the experiment; it was followed by the group-project, individual study unit, and the lecture-outline methods. The group-project method was nearly as good as the lecture-textbook method, but the lecture-outline method brought about almost no change in attitudes.

That geography students rated less satisfactory in world-mindedness than education students was evidence that geographers have not been as successful as their claims indicate in teaching attitudes and appreciations. This appears to indicate a need for geographers to more carefully set up their objectives in terms of socially accepted behavioral patterns and to constantly evaluate their programs to determine the success of their instruction. Additional experimentation must be made in the area of teaching methods in college geography. Also further refinement of attitude tests is needed to better measure social learnings.

GEOGRAPHY AND MUNICIPAL BOND ANALYSIS

LAWRENCE A. KRATZ
Dun and Bradstreet, Inc.

Geography is generally regarded as a cultural or avocational study practically devoid of mercenary or vocational utility. It is true that few professional people are full-time geographers, but many of them have to be part-time geographers. A knowledge of geography is either desirable or indispensable in many occupations commonly supposed to be unrelated to geography. One such occupation is municipal bond analysis.

What is municipal bond analysis, and why must a municipal bond analyst know geography? In the jargon of finance, a municipal bond is any bond issued, not only by a city, but also by a state, a county, a district (such as a school, irrigation, drainage, mosquito-abatement, or road-construction district), an authority (such as a port or housing authority), or other sub-federal governmental unit. Most municipal bonds are purchased by wealthy investors, corporations, banks, insurance firms, large estates, trust companies, and institutions interested in a small, safe return, rather than a large risky one. Many of these investors consult municipal bond analysts, whose function is to write reports on the authority, willingness, and ability of communities to pay debts. In order properly to evaluate debt-bearing capacity, a municipal bond analyst must investigate numerous problems pertaining to the geography of a community. An incomplete, but suggestive list of such problems follows:

1. How large is the population? Other factors being equal, a community with a large population can support a heavier debt than one with a small population.

2. How high is the real income per capita? The debt-servicing capacity of a community depends on that of the average resident, which is a function of real income per capita.

3. Is the economy of the community specialized or diversified? Would the contraction of one large industry, or closely related group of industries seriously impair community income?

4. Is manufacturing an important source of community income? If so:

a. To what extent are the manufacturing industries of the community affected by the business cycle? Are the principle manufactures luxury-goods, durable-goods, or producers-goods for which

demand is comparatively variable, or necessity-goods, perishable-goods, or consumers-goods for which demand is relatively stable? How much danger would there be of a debt-service default during a depression as a result of widespread industrial paralysis?

b. Is manufacturing liable to expand or contract in the future? Are new industries moving into the community? If not, are community improvement projects or basic economic developments underway which are liable to attract new industries? Are the old industries moving out? If not, are they remaining because the community is still a comparatively good place for them, or because of the cost of transplanting or abandoning buildings and equipment now in use? When present buildings and equipment have worn out or become obsolete, will the old industries move away?

5. Is agriculture an important source of community income? If so:

a. Does much farming take place on marginal land liable to be retired from cultivation during periods of low prices?

b. Are land use methods increasing, conserving, or reducing the productivity of the land?

c. Are droughts, frosts, insects, fungi, heat waves, or hail-storms serious and unpredictable menaces to farm income stability?

6. Is mining an important source of community income? If so:

a. What is the quantity and quality of its mineral reserves?

b. Will these reserves probably keep the mines in operation until after the community debt has been paid off?

7. Is lumbering an important source of community income? If so:

a. Are the forests being mined or farmed?

b. Is timber a permanent or a temporary resource?

Not only the analysts, but also the buyers and sellers of municipal bonds need to know geography in order to function effectively. Without some geographic background, it is difficult for buyers to understand municipal credit reports, or for sellers to direct attention to the geographic advantages of bond-issuing communities.

THE NATIONAL COUNCIL AT WORK

The National Council of Geography Teachers will hold its 1950 meeting at the Edgewater Beach Hotel in Chicago on Friday and Saturday, November 24 and 25. The meeting will be a parallel session with the meeting of the Central Association of Science and Mathematics Teachers. There will, however, be two joint sessions, one on *Mathematical Geography* and one on *Conservation*. Each organization will have its own banquet on Friday evening, and there will be a mixer for members of both groups at the hotel immediately following the banquets. For reservations at the hotel write directly to the management, 5300 North Sheridan Road, Chicago.

UNESCO Conference

The UNESCO Relations office of the Department of State, United States Government, asked the National Council of Geography Teachers and the National Council for the Social Studies to aid in drawing up a list of recommended delegates to the 1950 UNESCO conferences, one on the teaching of geography as an aid to world understanding—at McGill University, Montreal, Canada, from July 12 thru August 23—and the other on history textbooks—at Brussels, Belgium, thruout the same period. Certain definite qualifications were set up for the entire delegation; every effort was made to have this country represented by balanced delegations at the conferences. The undersigned was in Washington twice during the preliminary period, and conducted an extensive correspondence with teachers of geography all over the United States. The recommended list contained names of many qualified individuals. Final selection of the delegation was made by officials in Washington. These delegates and some fifty other persons were invited to a preliminary conference in early May. They were guests of the University of Illinois at this time. The final announcement of the American delegation was made in Washington on June 15, and consisted of the following:

Professor Zoe A. Thralls, Department of Geography, University of Pittsburgh
Professor Thomas F. Barton, Department of Geography, Indiana University
Sister Mary Ursula Hauk, R.S.M., Saint Columba's Convent, Johnstown, Pa.
Miss Marion H. Seibel, School 52, Buffalo 14, N.Y.

The delegation represents interests of geography from the elementary level thru the secondary and college levels, as well as the teacher-training interests of the field. The National Council looks forward to a report on the UNESCO Conference from this group in November.

Publications

Professional Paper No. 10, A Bibliography on Lists of Maps, will be published shortly. The Council also has in preparation an Airways Map of the World. Dr. G. Etzel Pearcy, formerly geographer with Trans-World Airlines (TWA), undertook preparation of the map, and has brought his wide experience and knowledge to it; the Council is deeply indebted to him. Dr. Pearcy has now left the United States for an extended period, and Dr. Norman Carls, American University, Washington, D.C. has undertaken the early completion of the map.

LOYAL DURAND, JR.
President

EDITORIAL NOTES AND NEWS

DR. ESTHER ANDERSON of the University of Nebraska reports that the Nebraska Council of Geography Teachers has extensive plans for making the *Bulletin* better than it has ever been in the past. It has long been one of the outstanding publications issued by a state council. The new officers of the Nebraska Council are: John M. Moulton, Hastings College, Hastings, Nebraska, President; Alvin M. Johnson, Chadron State Teachers College, Chadron, Nebraska, Vice President; Miss Hildegarde Perssons, Lincoln City Schools, Nebraska, Secretary-Treasurer; Miss Flora Dutcher, McCook Public Schools, and Miss Esther S. Anderson, University of Nebraska, Editor and Co-editor of the *Bulletin;* and Miss Esther Anderson, State Coordinator.

JOHN L. TAYLOR, who has been working for his doctorate at Clark University, returned to active duty with the Navy on August 1. He will be stationed for three months on Chichi Jima in the Bonin Islands where he will conduct geographic research for the Navy and the Pacific Science Board of the National Research Council. In November he will return to Pearl Harbor where he will be Director of Civilian Education in the Trust Territory and attached to the Staff of the High Commissioner of the Trust Territory of the Pacific Islands.

EDITH PUTMAN PARKER, University of Chicago, has been developing a new branch of systematic geography through a seminar in the *Geography of Education.* This seminar is offered for advanced graduate students. During 1948 and 1949, three doctoral dissertations and one master's thesis dealing with the geography of education were completed under her guidance. The four studies are "Educational Land Use in the River Forest-Oak Park Community" by Herbert H. Gross; "Educational Land Use in Lake County, Ohio" by Edna E. Eisen; "The Geography of Education in the Winnetka and Bridgeport Communities of Metropolitan Chicago," by Allen K. Philbrick; and "Educational Land Use in the Territory of Hawaii" by Minnie Lee Van Telburg. Miss Parker, recipitant of the 1949 Distinguished Service Award in Geographic Education, is known most widely for her technical speciality, educational geography.

During the first six months of 1950, the following six chapters of Gamma Theta Upsilon were established: Alpha Iota chapter, University of Oklahoma, Sponsor, Dr. John W. Morris; Alpha Kappa chapter, University of Virginia, Sponsor, Dr. Sidman P. Poole; Alpha Lambda, East Tennessee State College, Sponsor, Dr. Ruben L. Parsons; Alpha Mu, Milwaukee State Teachers College, Sponsor, Dr. Mary Jo Read; Alpha Nu, Kent State University, Sponsor, Dr. James R. Beck; Alpha Omicron chapter, Northwestern University, Sponsor, Dr. Clyde F. Kohn.

Copies of the "Ruhr Area, Its Structure and Economic Importance" may be secured from the United States Department of Commerce for twenty cents each.

DR. ALFRED J. WRIGHT, Ohio State University, taught at the University of Nebraska during the 1950 Summer Session.

According to Dr. Joseph S. Davis, head of the Food Research Institute, Stanford University, California, we might have a population up to 300,000,000 by the year 2,000. Dr. Davis expresses his ideas in a pamphlet entitled "The Population Upsurge in the United States."

DR. CHARLES C. COLBY, Visiting Professor of Geography at the University of Illinois during the past academic year, served as Visiting Professor at the University of California at Los Angeles during the Summer Term, 1950.

GEOGRAPHICAL PUBLICATIONS

John E. Ivey, Jr., Nicholas J. Demerath, Woodrow W. Breland. **Building Atlanta's Future.** 305 pages. The University of North Carolina Press, Chapel Hill, 1948. $3.50.

Theodore T. McCrosky, Charles A. Blessing, J. Ross McKeever. **Surging Cities.** 287 pages. Greater Boston Development Committee, Inc., Boston, Massachusetts, 1948.

These two books which were offered about the same time are striking evidence of the growing recognition being given by the public to the importance of urban planning in all its phases. Following the example set by pioneering Chicago some years ago when the noted Wacker Manual written for the public school students attracted nation-wide attention, Atlanta and Boston interests with the cooperation of their respective school authorities and public school teachers produced these highly commendable works.

Altho the topics which they cover are similar and both books are profusely illustrated with interesting photographs, sketches and charts, they stand out in great contrast with each other with respect to style of writing and consequent appeal. The story of Atlanta is lively and informal while that of Boston is rather matter of fact recording. These volumes would be worthwhile if for no other reason than their demonstration of how the treatment of a given subject must, on the one hand, make a strong appeal even to the most indifferent person, while on the other hand, it can be so discussed as to appeal essentially only to those who have already developed a special interest.

The objectives of these books is well expressed in the words of the Preface to the Atlanta publication:—". . . to know Atlanta's people, what they do, how they live together, and how they work together—how people cooperate to build a city." Both emphasize the vital importance of making cities livable for all classes of their population. The Boston story is somewhat the more comprehensive so far as the principles and elements of planning are concerned. It introduces more of the history of planning and considers in greater detail what has been done in other centers. But both deal with essentially the same topics including in addition to the significance of planning, the history, geography, sociology and economics of city growth both areally and down thru the years. Regionalism is by no means overlooked; human relations in their various ramifications are given prominence.

Illustrations are so numerous that both books would succeed in telling much of their respective stories were there no text. Both include bibliographies, the Boston list somewhat broader than the Atlanta. The Boston book contains a Glossary of terms and the Atlanta story, a series of questions at the end of each chapter. The Boston volume specifically states it is intended for secondary school students; the Atlanta authors do not make this matter clear. Presumably it could be used in either Junior or Senior high school.

Altho neither publication is stamped as a geographic work, both are largely geographical. Much of the world still needs to develop an awareness of the geographical when they write or speak in this field and to discontinue confusing the latter with sociological, economic, historical and other realms of knowledge.

Building Atlanta's Future and *Surging Cities* are important contributions to the field of urbanism and should give young people a lively awareness of the meaning and value of urban planning. May these books be read widely not only in the cities for which they are intended but elsewhere.

Ohio State University EUGENE VAN CLEEF

Barr, Jones, Delaney, Cutright, Charters. **Our Friends in South America.** 418 pp. 28 maps and charts. The Macmillan Company, New York. 1950. $2.48.

The five authors of this volume have achieved with distinction the difficult task of presenting complex and mature concepts in international relations in a form suited to the sixth-grade level, and interesting even to high school classes in beginning Spanish and geography. Their theme, consonant with their purpose to increase friendly inter-American relations, is set forth simply: "We cannot understand the people of South America, or of any part of the world, unless we know something about the geography and history of their land." This theme is elaborated comprehensively in four sections. Part I develops it chiefly from the standpoint of geography. It delineates the major physical and climatic regions of the continent, and with each, gives examples of how natural environment furnishes the stage for a variety of types of occupance and ways of thinking, and, also, handicaps, in some areas, progress in modern living. Part III provides an "up to the minute" account of production and the commerce of South America, stressing the hazards of dependence upon a one- or two-product economy. The remaining sections show how history, including current inter-American relations, conditions, cultural patterns and political inter-state attitudes. Here, understanding by young readers would be aided by greater recognition of the geographic factors established earlier in the book. Also, in the interest of developing initial, objective concepts among youthful "internationalists," the assumption that further education of Latin-Americans need not bring, necessarily or desirably, full conformity to the modern Anglo-Saxon norms of the United States, merits increased emphasis. The content of the text is richly enhanced by relief maps, altitude sections, pictures, bibliography, and a variety of worthwhile suggested activities. This is a volume which the thoughtful teacher will be happy to place in the hands of young people.

Kelly High School, Chicago KATHARINE CALLOWAY

Louis Bromfield. **Out of the Earth.** 305 pages, 41 pictures. Harper and Brothers, 1950. $4.00.

This is an exciting book.

Louis Bromfield brings up to date the story of Malabar Farm in southeastern Ohio, giving us the best case study we have of a conservational farm.

But this book is more than a case study. Using his farm as a spring board, Bromfield dives off into a sea of ideas of concern to the conservationist as well as to the practical farmer: the restoration of wornout land, the effect of tillage on the land, the mixing of growing crops, the resistance of well-fed plants and animals to disease, the conservation of water on the farm, rough fitting of land, using deep-rooted plants to feed on the subsoil, significance of trace elements, the role of organic matter in the soil, price-control measures as perpetuating destructive land use, and grass farming.

As tho this were not enough in one book, he treats his readers with spirited essays on the Muskingum flood control project; opportunities in the South for ambitious, competent farmers; the relation of good hunting to good land; advice to makers of farm machinery; speculations on whether the world can feed itself; and a chapter on education, in which he pleads for teachers who can "spark" the minds of learners into flame.

If this book fails to stir the reader to greater enthusiasm for better use of the good earth, its shower of sparks is clearly falling on wet tinder.

George Peabody College for Teachers J. RUSSELL WHITAKER